

REMARKS/ARGUMENTS

In response to the Office Action dated June 16, 2006, claims 16, 18, 19, 23, 29, and 31-33 have been amended, and claims 21, 22 and 30 have been cancelled. Claims 16-20, 23-29 and 31-34 are now active in this application. No new matter has been added.

The indication that claims 19, 20 and 23 have been objected to, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims is acknowledged and appreciated.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 21 and 22 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner contends that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The rejection is moot, as claims 21 and 22 have been canceled.

OBJECT TO DRAWINGS

The drawings have been objected to for failing to show the features recited in claims 21 and 22.

The objection is moot, as claims 21 and 22 have been canceled.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

I. Claims 16, 17, 29-32 and 34 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Kawato et al. (JP Patent Publication 11-337942).

Claims 18, 24, 27, 28 and 33 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawato et al. in view of Wang et al. (US 2001/0055075).

Claim 25 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawato et al. in view of Wang et al., as applied to claim 18 above, and further in view of Bourdelais et al. (USPN 6,846,098).

Claim 26 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawato et al. in view of Wang et al., as applied to claim 18 above, and further in view of Okuno (US Publication 2001/0006461).

II. Kawato et al. discloses a lighting apparatus in which a light diffusion sheet is arranged on a light emitting surface of a light guide plate, and it is aimed at obtaining such lighting apparatus that is high in reliability, easily assembled and maintained, and made thin by preventing occurrence of luminance unevenness or the like caused by discontinuous contact between the light diffusion sheet and the light guide plate due to occurrence of flexure or wrinkling of the light diffusion sheet, even when the apparatus is used in a high-temperature environment. The lighting apparatus is structured such that a frame 3b of the lighting apparatus is provided with a locking piece 4 in a projection shape, a light diffusion sheet 2 is provided with a hole 5 having a size such that the locking piece 4 is fitted in the hole with play, and the locking piece 4 is

inserted into the hole 5 so that the light diffusion sheet 2 is fitted with the frame 3b (see Figure 1 (Ref 1) of Reference Figure below).

Further, the physical relationship of the hole 5, the locking piece 4, and a locking claw 7 is disclosed ([0014], Fig. 3) in cases where one hole 5, with which the optical diffusion sheet 2 is provided, is provided in both sides of a light emitting surface and the locking piece 4, with which the frame 3b is provided, has a locking claw 7 at the tip thereof.

Wang et al. relates to a rotating mechanism by which a screen of a liquid crystal display unit or the like is made rotatable, and it is aimed at providing a mechanism by which the screen can be smoothly rotated by preventing collision of the screen and a stand when the screen is rotated. The mechanism comprises a positioning portion connected to a rotating device provided at a backside of the screen and to a positioning hole provided at a backside of the screen. Wang et al. discloses that the smooth rotation without collision of the screen and the stand can be achieved by completely separating the positioning portion from the positioning hole during rotation.

However, Wang et al. does not disclose any attaching structure of optical members in the liquid crystal display unit.

Comparison between the References and the Claims of the Present Application

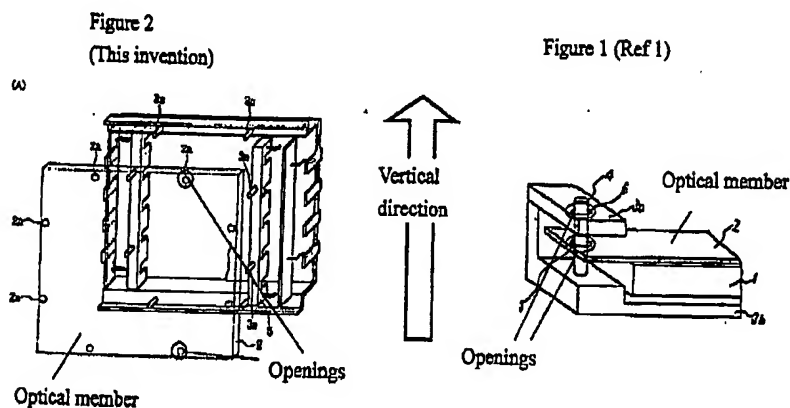
Independent claim 16 and Kawato et al.

Independent claim 16 of the present application recites providing at least two pairs (four pairs in total) of an opening and a locking portion on both sides of an optical member in the horizontal direction, both vertically above and below. Further, the connection state of these four

pairs of the opening and the locking portions are clearly specified in claim 16. On the other hand, as described above, Kawato et al. only discloses providing a pair (two pairs in total) of a hole and locking piece on both sides of the display device in the longitudinal direction in Fig. 3(c) and thus, it does not satisfy the features recited in independent claim 16.

However, while independent claim 16 recites the term “vertically” to indicate the arrangement of the openings, since nothing in claim 16 specifies the direction in which the lighting apparatus faces, it appears that the Examiner believes that the features of claim 16 are the same as the features shown in Fig. 1 of Kawato et al., which, in fact, differs in direction by 90° from that of the present invention (see Reference Figure below).

Reference Figure



That is, in both Fig. 2 of the present application and Fig. 1 of Kawato et al., it appears that there are openings both vertically above and below with respect to the center of gravity of

the individual optical members. Thus, in order to specify the direction in which the lighting apparatus faces, independent claim 16 has been amended to delineate, *inter alia*:

in cases where the light emitting plane of the optical member is parallel to the vertical direction, at least one set of an opening and a locking portion is provided on each of left and right sides with respect to the center of said optical member in the horizontal direction, both vertically above and below with respect to the center of gravity of said optical member...

By delineating “in cases where the light emitting plane of the optical member is parallel to the vertical direction”, that is, in cases where the direction in which light is emitted is perpendicular to the vertical direction, amended independent claim 1 is clearly distinguishable over the arrangement of Kawato et al. Wang et al. does not remedy the differences between amended claim 16 and Kawato et al.

Referring to Fig. 3(c) of Kawato et al., while only a pair (two pairs in total) of the hole and the locking piece is provided on each of left and right sides of the light diffusion sheet in the horizontal direction, the hole and the locking piece are not provided on the upper side in the vertical direction. Namely, the light diffusion sheet is supported only by the holes in each of left and right sides, and thus, weight of the light diffusion sheet portion above the holes cannot be supported, thereby causing warpage or flexure on the upper side portion of the light diffusion sheet. In contrast, the invention, according to amended independent claim 16, provides a particular advantageous effect that prevents warpage or flexure due to the weight of the optical member by providing at least two pairs of the opening and locking portions on the upper side of the optical member in the vertical direction.

Further, while Fig. 3(c) of Kawato et al. is considered to have been drawn with the intention that a pair of the hole and the locking piece is provided on each of left and right sides of

the light diffusion sheet in the horizontal direction, if the drawing is rotated by 90°, it may be interpreted to be a drawing in which a pair of the hole and the locking piece is provided vertically above and below. However, by adopting the structure in which the optical member is supported by at least two portions on the upper side of the optical member in the vertical direction, as in the invention recited in amended independent claim 16, the weight of the optical member can be distributed, thereby providing the particular advantageous effect of preventing warpage or flexure more effectively compared with the structure in which the light diffusion sheet is supported by one portion, vertically above, as in Kawato et al..

Independent Claim 18 and Kawato et al. and Wang et al.

The invention according to independent claim 18 is a lighting apparatus wherein a rotating mechanism is added to the lighting apparatus of independent claim 16. Currently, the invention according to independent claim 18 is considered unpatentable over a combination of Kawato et al., described above, and Wang et al., which discloses a rotating mechanism of a liquid crystal display device or the like.

To expedite prosecution, independent claim 16 has been amended, as in claim 16, to add a passage specifying the direction in which the lighting apparatus faces to clearly distinguish over a combination of Kawato et al. and Wang et al.

In Kawato et al., referring to Fig. 3(c), since only a pair (two pairs in total) of the hole and the locking piece is provided on both sides of the display device in the longitudinal direction, even if the arrangements of Kawato et al. and Wang et al. were combined, supporting the optical member by the upper side in the vertical direction cannot be enabled at a display position where

the longitudinal direction of the display device is perpendicular to the vertical direction, and thus the weight of the light diffusion sheet portion above the hole could not be supported, thereby causing warpage or flexure at the upper portion of the light diffusion sheet. Thus, it is impossible to obtain the particular advantageous effect provided by the invention according to amended independent claim 18, that is, a lighting apparatus comprising a rotating mechanism wherein the optical member can be supported by the upper side thereof in the vertical direction irrespective of rotational position, and that can prevent warpage or flexure due to its own weight.

Independent Claim 29 and Kawato et al.

The invention, according to independent claim 29, is a lighting apparatus comprising cutout portions, instead of the openings of the lighting apparatus recited in independent claim 16. The Examiner considers the invention according to independent claim 29 to be anticipated based on Fig. 1 of Kawato et al., or the like. Kawato et al. only discloses holes and it does not disclose the cutout portions intended by the invention according to claim 29 of the present application. However, It appears that the Examiner considers that the expression "cutout portion" used in independent claim 29 implies a "hole".

Thus, independent claim 29 has been amended to delineate that the cutout portion formed in each side on the left and right sides horizontally of the optical member, along the side forms upper and lower stepped portions with respect to an outer edge of each side. The holes of Kawato et al. do not form upper and lower stepped portions with respect to an outer edge of each side.

Independent claim 29 has been further amended to include a passage specifying the direction in which the lighting apparatus faces, as in independent claim 16, thereby further distinguishing over the arrangement of Kawato et al.

Claim 33 and Kawato et al.

The invention, according to claim 33 of the present application, is a lighting apparatus comprising cutout portions, instead of the openings of the lighting apparatus recited in independent claim 18. Thus, claim 33 has been amended to depend from amended independent claim 29, to add a passage specifying the direction in which the lighting device faces and to be consistent with stepped portions recited in amended independent claim 29. Amended claim 33 is clearly patentable over the arrangement of Kawato et al.

Claims 21 and 22

Claims 21 and 22 have been canceled.

Claim 30

Claim 30 has been canceled.

III. Neither Kawato et al., Wang et al., Bourdelais et al. nor Okuno discloses or suggests the features now recited in amended independent claims 16, 18 and 29. Consequently, amended independent claims 16, 18 and 29, as well as dependent claims 17, 24-28 and 30-34 are patentable over Kawato et al., Wang et al., Bourdelais et al. and Okuno, considered alone or in

combination. Consequently, the allowance of claims 16-18 and 24-34, as amended, is respectfully solicited.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise (Reg. No. 34,523) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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